

SYNOPSIS OF NORTH AND CENTRAL AMERICAN
HOLCOCEPHALA WITH A DESCRIPTION OF
A NEW SPECIES (DIPTERA: ASILIDÆ)

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The genus *Discocephala* was erected by Macquart (1838) to include *rufithorax* Wiedemann (Brazil) previously ascribed to *Dasypogon*, *oculata* Fabricius (S. Amer.) previously ascribed to *Dioctria*, and a further species *rufiventris* Macquart (Eastern U. S.) which is a synonym of *abdominalis* Say described under *Dasypogon*. *Discocephala*, preoccupied by Laporte-Castelnau in Hemiptera (1832), was renamed *Holcocephala* by Jaennicke (1867). Loew has misspelled the genus as *Helcocephala* and Williston as *Holocephala*. Hermann (1924) designated *rufithorax* as genotype and removed the African species and part of the South American species to the genus *Rhipidocephala*.

The genus *Holcocephala* is limited in distribution to the new world. A new genus is needed to take care of de Meijere's *hirtipes* (Java) described under *Holcocephala* and will probably include *hirsuta* van der Wulp (Sumatra) described under *Discocephala* and closely related to *hirtipes*. De Meijere's *hirtipes* is related to *Holcocephala* but differs by having a small spine at the tip of the third antennal segment above the single segmented style, the bristle at the end of the style curved in a hook, the anal cell open, the body and legs very hairy, and by lacking the supra-oral groove. *Holcocephala* has a single segmented style with a straight distal bristle, a closed anal cell, a supra-oral groove, and is usually nearly bare. *Hirtipes* is more closely related to *Rhipidocephala* but differs in having the antennæ as described rather than with a two segmented style. It is more distantly related to *Damalina* and *Trigonomima* (Formosa, East Indies) which have a curved spine at the tip of the third antennal segment as well as a terminal arista, to *Damalis* (Asia, E. Indies, Afr., Amer.) and to the four related African genera that have been proposed which have only a terminal arista, lacking a style. Walker's three spe-

cies, *concolor* (Celebes), *dorsalis* (Moluccas, Borneo), and *prytanis* (Bengal), which he referred to *Discocephala*, may belong to *Damalis* or *Damalina*.

These genera, *Holcocephala*, *Rhipidocephala*, the genus left unnamed, *Damalina*, *Trigonomima*, *Damalis*, *Lasiodamalis*, *Lophurodamalis*, *Icarionimima*, and *Discodamalis* form a homogeneous group of the subfamily *Dasypogoninae* which is characterized by having an open marginal cell, a prosternal plate directly contiguous with the pronotum, an absence of acanthophorites and spines in the female ovipositor, seven normally visible abdominal segments in the male, and by having the head over twice as wide as high with a "goggle-eye" appearance. This group of genera is closely related to Hermann's tribe *Prytanini* which differs by having the male abdomen reduced to six visible segments in the male, and by having the eyes normal, about one and one-half times as broad as high. The genera may be further subdivided into groups on the basis of the structure of the metasternum and the presence or absence of an antennal style or arista. The former will probably be more valuable in this connection than the latter. *Holcocephala* has the metasternum broken down, leaving the median part that is in junction with the abdominal sternum unsclerotized; *Damalis* has the metasternum extending as a sclerotized plate behind the posterior coxae.

In the United States the species of *Holcocephala* are rather well known, but the Mexican species have been largely unrecognized since described by early workers. As a result of the collecting of Dr. R. H. Painter in Honduras and of the author in southern Mexico, a considerable amount of material has been accumulated. New synonymy, the occurrence of South American species in Central America, and one new species are included in this paper. For the sake of completeness, diagnostic descriptions of all the North and Central American species are given and a key is included to facilitate their determination. Specimens from which descriptions are here drawn are designated as plesiotypes.

Holcocephala Jaennicke

1838. *Discocephala* Macquart, Dipt. Exot., i: 166 (preocc.).
1867. *Holcocephala* Jaennicke, Neue Exot. Dipt.: 51.

1874. *Helcocephala* Loew, Berl. Ent. Zeitschr., xviii: 377.
 1891. *Holcocephala* Williston, Trans. Ent. Soc. Amer., xviii: 72.
 1924. *Holcocephala* Hermann, Verh. Zool.-Bot. Ges. Wien, lxxiv: 153.

Hermann (1924) has presented a partial key to the *Holcocephala* which will be a valuable aid for identification of South American forms.

Enderlein has proposed the genus *Arthriticopus* for *nodosipes* Enderlein (Columbia) on the basis of abnormally enlarged posterior metatarsi and distal part of posterior tibiae. Further study will quite likely show this species to be a synonym of *Holcocephala scopifer* Schiner (Venezuela, Peru) which Hermann did not consider worthy of generic rank.

KEY TO NORTH AND CENTRAL AMERICAN SPECIES

1. Posterior femora with several large, elongate tubercles below (Venezuela, southern Mexico).....*spinipes* Hermann
 Posterior femora without tubercles.....2
2. Abdomen strongly coarctate on proximal part.....3
 Abdomen not coarctate.....4
3. Thoracic pleura light gray pollinose (eastern U. S.).....*calva* (Loew)
 Thoracic pleura dark brown pollinose (southern Mexico).....*stylata* n. sp.
4. Face with a dark, inverted "V" shaped marking.....5
 Face without such a marking.....6
5. Abdomen wholly brown pollinose; the three dark mesonotal vittae united anteriorly (South America to southern Mexico).....*oculata* (Wiedemann)
 Abdomen with ochreous fasciae on proximal segments; mesonotal vittae separated (southern Mexico, Venezuela).....*nitida* (Wiedemann)
6. Wings with a hyaline band on distal half.....7
 Wings entirely fuscous, sometimes lighter on distal half.....8
7. Mystax brown; abdomen unicolorous, black pollinose (Mexico).
affinis (Bellardi)
 Mystax yellowish; abdomen dark brown pollinose with lateral margin considerably lighter (southern Mexico).....*divisa* (Walker)
8. Mesonotum conspicuously clothed with brown hairs; brown species with brown legs (Texas).....*bullata* Bromley
 Mesonotum practically bare; legs blackish or yellowish.....9
9. Legs largely yellowish; wings paler distally (eastern U. S.).
abdominalis (Say)
 Legs largely black; wings darker on costal margin, not paler distally (southern Mexico).....*deltoidea* (Bellardi)

Holcocephala spinipes Hermann

1924. *Holcocephala spinipes* Hermann, Verh. Zool.-Bot. Ges. Wien, lxxiv: 165.

Black; head brown pollinose anteriorly, cinereous posteriorly; mystax an oral row of brown bristles and brown hairs thinly on lower half of face; two ocellars, bristles on proximal two antennal segments, and palpal hairs, brown; antennal style about one-fifth the length of third segment. Thorax cinereous pollinose, the mesonotum mostly brown; three wide mesonotal vittæ dark brown and hardly differentiated; mesonotum and scutellum with white hairs except on vittæ; pleura white haired. Legs castaneous; vestiture whitish or pale yellowish, on tarsi and tips of tibiæ, brown; hind femora on distal half below with two or three strong, elongate tubercles. Wings lightly fuscous, very long and slender. Abdomen dorsally brown pollinose, cinereous on posterior two-thirds of lateral margin of each segment and on anterior third of second segment; venter grayish pollinose; lateral margins white pilose, longer on proximal segments. Length, 6.5 to 8 mm.

Type material.—One male, two females from Venezuela in the collection of the Natural History Museum in Wien.

Plesiotype.—Male, Jalapa, Vera Cruz, Mexico, July 8, 1935 (A. E. Pritchard), in collection of the University of Minnesota.

Additional specimens examined.—Three males, seven females, Jalapa, Mexico.

***Holcocephala stylata* new species**

Black, with dark brown and luteous pollen; legs brown; wings fumose. Especially characterized by the strongly developed antennal style, the strongly spatulate abdomen, and the occurrence of r-m beyond the middle of cell 1st M_2 . Length, 8 mm.

Female.—Head white pollinose, with brown pollen on vertex, oral margin, face around antennal bases, and weakly in two diverging lines, one from each antennal base to lower, lateral margin of face; bristles on palpi and proboscis yellowish; mystax composed of fine white hairs over lower half of face, thicker on oral margin; antennæ black, the three segments brown pollinose; first pale haired below; second black haired above and below; third gradually incrassate with several microchætæ above near tip; style shining, tapering, three-fourths as long as third segment and bearing a small distal bristle.

Thorax brown pollinose, with cinereous pollen present as a spot above each wing articulation continued mesad in a line along transverse suture, a small spot above each posterior callus, broad margin of scutellum, and on either side of metanotum; mesonotum and scutellum thinly clothed with fine white hairs; pleura thinly white pilose.

Legs castaneous, the posterior femora below and posterior tibiæ except incrassate apex, a little paler; vestiture mostly white and yellowish, the

bristles of anterior four tarsi and sometimes part of those of hind tarsi, black.

Wings long and slender, evenly fumose; cross vein r-m a little beyond middle of cell 1st M_2 .

Abdomen with second and part of third segments strongly constricted, beyond this widened and flattened; tergum one with pollen on proximal division brown, on distal division luteous, the lateral margin and venter with long white hairs; second luteous with a large brown spot covering most of proximal third, and continued posteriorly in a narrow dorsal line that falls short of the caudal margin, the lateral margin and venter white pilose; third brown with a large luteous triangle on either side, their apices directed inwardly and nearly meeting on middorsal line; fourth brown except narrow caudal margin, luteous; sternites one to four cinereous, five to seven brown.

Holotype.—Female, Oaxaca, Oaxaca, Mexico, July 12, 1935 (A. E. Pritchard) in collection of the University of Minnesota.

Paratypes.—One specimen, Oaxaca, Oaxaca, Mexico, July 12, 1935 (A. E. Pritchard).

H. stylata is related to *calva*, differing mainly in the large antennal style, the thickly white haired oral margin, the brown pollinose thoracic pleura, and the luteous pollinose maculations of the abdomen. This species was found on tips of dead oak branches on a very dry hillside near Oaxaca in the arid western part of Mexico, while the other Mexican species were taken on the verdant and humid Gulf slopes on the eastern side of the Republic.

Holcocephala calva (Loew)

1872. *Discocephala calva* Loew, Cent., x: 35.

1909. *Holcocephala calva* Back, Trans. Amer. Ent. Soc., xxxv: 309.

Black; head brown pollinose in front, cinereous behind; mystax a few pale yellowish oral bristles and a few fine, white hairs on lower half of face; antennae brown pollinose, the proximal two segments with brown bristles; style shining black, about one-third as long as third segment. Thorax cinereous pollinose, otherwise practically bare. Legs castaneous, the vestiture pale, on the tarsi and tips of tibiae light brownish. Wings long and slender, evenly brownish; cross vein r-m just before middle of cell 1st M_2 . Abdomen coarctate, the second segment constricted, longer than broad; tergum brown pollinose, the incisures and lateral margins of proximal segments grayish pollinose; sternum cinereous pollinose. Length, 7 to 9 mm.

Type.—Female from Texas in the Museum of Comparative Zoology.

Plesiotype.—Male, Hugo, Oklahoma, June 20, 1934 (A. E. Pritchard).

Additional material examined.—Numerous specimens from eastern Okla., Tenn., Miss., and Kans.

A common species, often found in company with *abdominalis* in forested areas. Occurs from New Jersey to Florida west to Texas and Kansas.

Holcocephala nitida (Wiedemann)

1830. *Dasyopogon nitida* Wiedemann, Aussereur. Zweifl. Ins., ii: 643.
- ?1860. *Discocephala interlineata* Walker, Trans. Ent. Soc. London, n. ser., v: 279 (new synonymy).
1861. *Discocephala nitida* Bellardi, Saggio di Ditterol. Messic., ii: 84.
1901. *Holcocephala nitida* Williston, Biol. Centr.-Amer., Dipt., i: 308.

Black; head ochreous pollinose anteriorly, the face with two diverging lines of brown pollen, one from each antenna to the lower lateral side of the face; head cinereous pollinose posteriorly except broadly ochreous around occiput; oral bristles and bristles of palpi yellowish; antennæ with small bristles on proximal two segments brown; style one-fourth the length of third segment. Mesonotum bright ochreous pollinose with three separate vittæ (anterior brown suffusion, when present, not uniting them); lateral mesonotal vittæ falling well short of anterior and posterior calli; dorsum sparsely clothed with minute, yellow hairs; pleura with the few hairs present, yellowish. Legs dark brown, the trochanters and femora proximally light brown; vestiture pale yellowish. Wings wide proximally, fumose, darker on costal side of basal half; cross vein r-m just before middle of cell 1st M₂. Abdomen brown pollinose; ochreous on segment one, on two except on proximal third, and very broadly on sides of three; cinereous on sides of four to seven. Length, 5 to 9 mm., usually 7 or 8.

Type material.—*Nitida* was described from specimens from Mexico in the Berlin museum; *interlineata* was described from female from Mexico in the British museum.

Plesiotype.—Male, Jalapa, Vera Cruz, Mexico, July 8, 1935 (A. E. Pritchard).

Sixty-one additional specimens from Jalapa, Mexico, maintain the constancy of this characterization. Hermann mentions similar specimens from Venezuela in his discussion of *oculata*. *H. interlineata* (Walker) is very likely the same species; the interlineation of the middorsal mesonotal stripe with yellowish is a variable and unimportant character. *H. minuta* (Bellardi) is not recognized here as a synonym of this species as Williston considered it.

Holcocephala oculata (Fabricius)

1805. *Dioctria oculata* Fabricius, Syst. Antliat.: 151.
 1821. *Dasyogon oculatus* Wiedemann, Dipt. Exot.: 230.
 1838. *Discocephala oculata* Macquart, Dipt. Exot., i: 166.
 1849. *Dasyogon agalla* Walker, List Dipt. Brit. Mus., ii: 361.
 ?1861. *Discocephala minuta* Bellardi, Saggio di Ditterol. Messic., ii: 83 (new synonymy).
 1924. *Holcocephala oculata* Hermann, Verh. Zool.-Bot. Ges. Wien, lxxiv: 161.

Differs from *nitida* in having the abdomen dorsally brown pollinose with narrow lateral margin cinereous, the mesonotal vittæ broadly united anteriorly with the lateral mesonotal vittæ continued posteriorly to the scutellum, and in averaging smaller in size. The genitalia of the species are the same, but a series maintaining the constancy of characters stated does not call for making *nitida* a synonym of *oculata* at the present time.

Type material.—Of *oculata* from South America in the museum at Copenhagen; of *agalla* from Venezuela in the British Museum; of *minuta* from Tuxpango, Mexico, in the zoological museum at Torino.

Hermann recognized the typical *oculata* from Brazil, Peru, Bolivia, and Venezuela. Specimens from Puerto Castilla, Honduras (R. H. Painter), are indistinguishable from material from Brazil. Specimens at hand from Peru differ in having the palpi black haired. *H. minuta* (Bellardi) (Southern Mexico) is here considered a synonym of *oculata*; Bellardi separated this species from *nitida* by the more extensive, black mesonotal vittæ and smaller size. Hermann reduced *urruguayensis* Arribalzaga to a

variety of *oculata* and described another variety at the same time. It is possible that both of these are worthy of specific rank.

Holcocephala divisa (Walker)

1860. *Discocephala divisa* Walker, Trans. Ent. Soc. London, n. ser., v: 279.

1861. *Discocephala longipennis* Bellardi, Saggio di Dittertol. Messic., ii: 86.

Black; head brown pollinose anteriorly, cinereous posteriorly; mystax a few yellowish hairs on lower half of face and a row of yellowish oral bristles; palpi with yellow bristles; antennæ with style one-third the length of third segment. Mesonotum mostly brown pollinose with three very wide, dark brown vittæ; pleura below with pollen tending towards cinereous, thoracic dorsum noticeably clothed with fine white hairs, pleura rather thickly so. Legs castaneous; vestiture brownish, the thick, appressed hairs on inside of anterior tibiæ and tarsi, white. Wings wide proximally, dark fumose with a wide, hyaline band on distal half leaving the wing tip fumose to a variable extent or hyaline. Abdomen with dorsum dark brown pollinose, the wide lateral margin somewhat paler; venter light brown pollinose. Length, 7 to 9 mm.

Type material.—*Divisa* was described from a female from Mexico in the British Museum; *longipennis* was described from specimens from Mexico in the zoological museum at Torino.

Plesiotype.—Male, Jalapa, Vera Cruz, Mexico, July 8, 1935 (A. E. Pritchard).

Additional specimens examined.—Six males and eleven females from Jalapa, Mexico.

Hermann has suggested the synonymy of *divisa* and *longipennis* and this has been followed here. *H. divisa*, however, has priority as used by Kertész in his Catalogue of Asilidæ. This species is known only from Mexico.

Holcocephala affinis (Bellardi)

1861. *Discocephala affinis* Bellardi, Saggio di Dittertol. Messic., ii: 86.

Bellardi describes *affinis* stating that it differs from *longipennis* in that the proportional length of the body is somewhat less; the

mystax is brown; the thorax is almost entirely black; the abdomen is not lighter on the sides; the wings are shorter, their posterior margin almost straight, and their markings more intensely black. This species has not been recognized again.

Type material from Mexico in the collection of the Zoolog. Mus. of Paris and in the Zool. Museum at Torino.

Holcocephala bullata Bromley

1934. *Holcocephala bullata* Bromley, Ann. Ent. Soc. Amer., xxvii: 89.

“Male.—Head black, face dark gray pollinose, vestiture pale golden brown, antennal style spine-like, pointed at tip, directed forward and slightly downward, and about three-fourths the length of the third segment. Thorax dark brown pollinose, scutellum slightly lighter. Halteres pale brown. Wings brown, basal half opaque. Legs and abdomen brown, vestiture pale golden brown. Genital forceps from above slender, widely separate.

“Female.—Similar, ovipositor with pale hairs.”

Holotype.—Male, Bexar Co., Texas, in collection of Texas Agric. Exp. Station.

Known only from type material from Texas.

Holcocephala deltoidea (Bellardi)

1861. *Discocephala deltoidea* Bellardi, Saggio di Ditterol. Messic., ii: 85.

Black; head pale yellowish gray pollinose anteriorly, sometimes with a greenish tinge, brown on ocellar tubercle and on sides of vertex, and cinereous posteriorly; mystax a thin row of yellowish bristles and several small, yellowish hairs above; hairs on palpi and below on proximal two antennal segments yellowish; antennal style one-fourth the length of third segment. Thorax dull ochreous pollinose, sometimes with a few white hairs posteriorly and on scutellum; pleura with hairs white. Legs black, the tibiae proximally and sometimes femora proximally, narrowly dark reddish; vestiture pale yellowish, the tarsal bristles partly brown. Wings long and slender, fumose, darker along the costa. Abdomen dorsally brown pollinose, usually dull ochreous on caudal

half of segment one, on median third of two, base of three, and sides of proximal segments; venter light ochreous; a few whitish hairs on sides and venter of proximal segments.

Type material from Mexico in the collection of the Zool. Mus. of Paris and in the Zool. Mus. at Torino; not again recognized until now.

Plesiotype.—Male, Jalapa, Vera Cruz, Mexico, July 8, 1935 (A. E. Pritchard).

Additional specimens examined.—Three females, Jalapa, Mexico.

Holcocephala abdominalis (Say)

1823. *Dasyopogon abdominalis* Say, Jour. Acad. Nat. Sci. Philad., iii: 50.

1838. *Discocephala rufiventris* Macquart, Dipt. Exot., i: 166.

1849. *Dasyopogon ata* Walker, List Dipt. Brit. Mus., ii: 360.

1867. *Dasyopogon laticeps* v. d. Wulp, Tijd. v. Entom., x: 137.

1909. *Holcocephala abdominalis* Back, Trans. Amer. Ent. Soc., xxxv: 309.

Black; head brownish ochreous anteriorly, brown on ocellar tubercle and vertex or sides of vertex, and cinereous posteriorly; palpal and oral bristles yellowish; antennal style one-fourth as long as third antennal segment. Thorax ochreous pollinose above, cinereous on sides below; mesonotum with three brown vittæ, the median one anteriorly reaching pronotum, the lateral ones caudally falling short of posterior calli and sometimes very small; mesonotum with a few very short, brown setæ on vittæ, and a few small white hairs posteriorly and on scutellum; pleura with hairs white. Legs yellowish, brownish on tips of tibiæ and tarsal segments; vestiture yellowish. Wings rather wide proximally, fumose, the distal half or less paler to a variable extent. Length, 4.5 to 7 mm.

Types.—Say's type is lost; *ata* was described from specimens from Florida and Massachusetts in the British Museum; *rufiventris* was described from material of both sexes from Carolina and is probably at Lille; *laticeps* was described from a male from North America and is in the museum at Leiden.

Neotype.—Male, Hugo, Oklahoma, June 20, 1934 (A. E. Pritchard).

Numerous other specimens examined from Okla., Ga., Maryl., N. C., Kans., Va., Kans., N. Y., N. J., Tenn. Back records the species from New Hampshire to Florida west to Texas and Nebraska. In Oklahoma, *abdominalis* is found only along the eastern side of the state. There are, however, specimens in the collection at the University of Kansas from New Mexico and from Alberta, Canada, which are larger, but indistinguishable, and have identical male genitalia.

